



R-C Thermal Model Parameters

DESCRIPTION

The parametric values in the R-C thermal model have been derived using curve-fitting techniques. R-C values for the electrical circuit in the Foster/tank and Cauer/filter configurations are included. When implemented in PSpice, these values have matching characteristic curves to the single-pulse transient thermal impedance curves for the MOSFET.

These RC values can be used in the PSpice simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in application note AN609, "Thermal Simulation of Power MOSFETs on the PSpice Platform".

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RT1	2.7678	188.7648m	n/a
RT2	36.8733	245.9074m	n/a
RT3	191.2000m	374.1501m	n/a
RT4	167.7000m	141.1777m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CT1	459.7213m	4.0702m	n/a
CT2	2.4869	9.2103m	n/a
CT3	23.1324m	22.5719m	n/a
CT4	9.4665m	176.2331m	n/a

Note

- n/a indicates not applicable

This document is intended as a SPICE modeling guideline and does not constitute a commercial product datasheet. Designers should refer to the appropriate datasheet of the same number for guaranteed specification limits.



R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	Ambient	Case	Foot
RF1	500.9499m	493.5043m	n/a
RF2	908.2501m	183.3992m	n/a
RF3	7.5408	229.3194m	n/a
RF4	31.0500	43.7771m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	Ambient	Case	Foot
CF1	7.0784m	2.6308m	n/a
CF2	306.4552m	14.5523m	n/a
CF3	734.4444m	8.0146m	n/a
CF4	1.9362	680.3878m	n/a

Note

- n/a indicates not applicable

